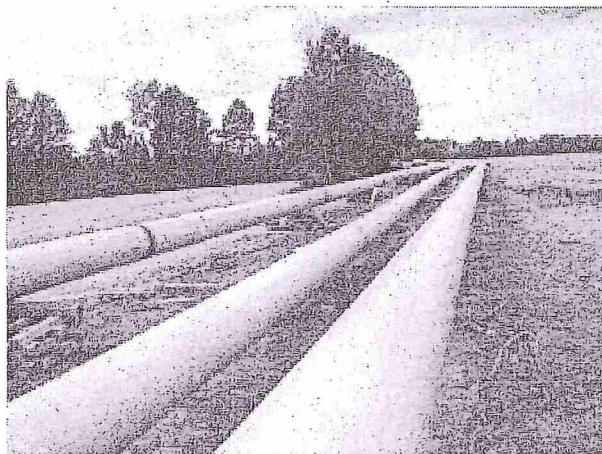


Energy Exchange

How to Ensure New Natural Gas Infrastructure Doesn't Lock Out Renewables

By [N. Jonathan Peress](#) | Published: June 5, 2015



efficiently than coal plants.

Many policymakers, regulators and industry members believe we have to build thousands of miles of new pipelines costing \$150 billion or more to feed this need. But that could be an unnecessary and expensive mistake, not just now but over a very long term.

Nationally, the U.S. has plenty of existing pipeline infrastructure to accommodate significantly expanded gas use, including to replace coal power plants with gas in order to meet the requirements of the proposed Clean Power Plan. In fact, we aren't even using 46 percent of the pipeline capacity we already have, according to a recent study by the U.S. Department of Energy. In its Quadrennial Energy Review, DOE concludes that in many areas of the country, enhancing the flexibility and capability of the existing network is a better investment than building new pipelines.

Although we will need to build out new pipes to fill in certain gaps, this should be complemented by an emphasis on removing the regulatory and market barriers that keep us from making *much* more efficient use of the massive infrastructure that's in place today.

If we don't, then billions of dollars of capital sunk into new pipelines will fall needlessly on ratepayer shoulders, and potentially constrain the ongoing expansion of clean, low-cost renewable technologies.

In an ideal world, our electricity system would run on 100 percent clean, renewable energy. Moving toward that goal means transitioning away from a system of centralized, fossil fuel power plants, to an intelligent, efficient, networked energy grid that smoothly integrates vastly increased amounts of renewables and energy-efficient solutions.

To do that, we have to balance the intermittency of renewables with our steady need for electricity. That's where natural gas comes in: When the sun stops shining or the wind stops blowing and renewables are offline, gas-fired plants can ramp up more quickly and

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Contracts Lock Out Innovation, Competition

The typical lifespan of a natural gas pipeline is 50 years or more. Because they are so expensive to build, pipelines are financed over decades based on long-term contracts that must provide enough money to pay for the full cost of the new pipeline, plus a guaranteed profit for the pipeline owner. By locking in that demand, however, these massive investments lock out competition from cleaner, more efficient alternatives.

New pipelines, in other words, inherently create long-lasting incentives to keep burning fossil fuel. And often those incentives are legally binding because more often than not, ratepayers (i.e., the public) are on the hook for the costs.

How natural gas is bought and delivered also creates huge inefficiencies in the pipeline system that are responsible for today's substantial underutilization, and which also work against renewables.

Flexibility is the defining characteristic of the developing lower carbon, lower cost energy grid. If gas is to be used to support renewables, pipelines (and power plants) must be able to accommodate loads that vary by the minute rather than the day. But pipelines typically schedule delivery of gas in steady volumes over the course of a 24-hour period.

Starting to Get it Right

New kinds of contracts and better management would facilitate delivery on short notice, and in shorter increments. Indeed, some pipeline operators are already providing additional flexibility and daily scheduling to meet demand peaks. But today, there's little market incentive for most pipeline companies across the country to adopt this approach.

Pipeline operators seeking to modernize pipeline systems to complement variable renewables and a more dynamic, interactive grid will distinguish their projects from developers stuck in the old paradigm of providing base load, unvarying quantities of natural gas. Companies that are getting it right – with or without encouragement from regulators – have a substantial opportunity to position themselves more competitively.

Steps Toward a More Efficient Market

Over the past year, the Federal Energy Regulatory Commission (FERC) – the agency responsible for managing the nation's energy grid – recognized that the current design of wholesale gas markets is not aligned with the needs of the evolving electricity market. In a recent order, FERC agreed with EDF and concluded that regional gas pipeline operators should be providing additional daily scheduling opportunities.

In expressly requiring more frequent scheduling, the Commission said that "additional intraday nomination [scheduling] opportunities could promote more efficient use of existing pipeline

infrastructure and provide additional operational flexibility to all pipeline shippers, including gas-fired generators" and directed the gas and electric industries to develop further mechanisms for faster more flexible scheduling, including by automating the process.

This is a good sign because it signals to the gas and electric industries that more market refinements are forthcoming to ensure natural gas pipeline infrastructure does not become a progressively bigger obstacle to cleaner, more efficient ways of doing business.

Competitive Renewables Are the Future

In its modeling to support the proposed Clean Power Plan to reduce carbon pollution from power plants, the Environmental Protection Agency projects that natural gas demand in the U.S. will increase for the next ten years or so as gas displaces coal. But then it is expected to start falling as energy efficiency and renewable energy technologies – which are already cost-competitive with fossil generation – continue to work their way into the energy grid. Recent analysis by the U.S. Energy Information Administration agrees.

A similar conclusion as was reached by The California Low Carbon Grid study by the National Renewable Energy Lab, which finds that by around 2020, the cost advantages of renewable technologies, energy efficiency, demand response, and energy storage begin to significantly reduce natural gas' share of the U.S. electric power market.

All of which means that regulators, investors and ratepayers should carefully examine proposals for new natural gas pipelines to make sure that the economics work over the long run because, in some instances, there's a good chance somebody is going to be stuck paying too much, for too long. This is a consumer issue whether or not you care about climate protection and clean air.

Deployed properly, natural gas *can* be part of the climate solution in the near term, but it is only a limited tool to help decarbonize the energy system. To be beneficial for clean energy, gas must be used efficiently and with a limited role into the future.

An inefficient overbuild of the regional pipeline system will lock in fossil fuels and impose unnecessary costs on customers and the environment. But, a refined energy market design, along with forward-thinking pipeline developers, can be part of the solution for displacing coal-fired power and complementing clean energy resources.

Image Source: Ohio Power Siting Board